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781 sttvktttss ssttskasst tttkttttst ttssgttata sayaqcggng wtgatvcftg
841 ytctysnafy sqcvps
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NEWS 44

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TI COLUMN CELLULOSE HYDROLYSIS REACTOR: CELLULASE ADSORPTION PROFILE.

AU TAN L U L; YU E K C; MAYERS P; SADDLER J N

- CS BIOTECHNOL. CHEM. DEP., FORINTEK CANADA CORP., 800 MONTREAL ROAD, OTTAWA, CANADA K1G 3Z5.
- SO APPLIED MICROBIOLOGY AND BIOTECHNOLOGY, (1986) VOL.25, NO.3, P.256-261.

FS NONUNIQUE

LA ENGLISH

- AΒ A column cellulose hydrolysis reactor was set up using a single passage of cellulase enzyme which was followed with a continuous percolation of buffer. Hydrolysis rates were found to decline precipitously upon the removal of the non-adsorbed cellulase components. By comparing specific activities of the cellulase before and after adsorption on the cellulose column, it was concluded that the adsorption efficiencies for the cellulase components decreased from exoglucanase (1,4-.beta.-D-glucan cellobiohydrolase EC 3.2.1.91) to endoqlucanase (1,4-(1,3:1,4)-.beta.-D-qlucan 4-qlucanohydrolase, EC 3.2.1.4) to .beta.-glucosidase (.beta.-D-glucoside glucohydrolase, EC 3.2.1.21). Of the adsorbed cellulase components, the rate of endoglucanase leaching from the cellulose column was 20 times, that for the exoglucanase despite the greater adsorption efficiency of the latter. By analysing the cellulase components which were found and not bound by the cellulose column and comparing them with a purified exoglucanase enzyme on sodium dodecyl sulfate polyacrylamide gels, it was confirmed that the major cellulase component adsorbed to the cellulose column was an exoglucanase component. The resultant loss of other cellulase components from the reactor was probably the cause for the much reduced rate of cellulose hydrolysis when these components were flushed out of the column.
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AN 1984-02292 BIOTECHABS

TI Characterization of exoglucanase and synergistic hydrolysis of cellulose in Clostridium stercorarium;

enzyme isolation and purification

AU Creuzet N; Berenger J F; Frixon C

LO Laboratoire de Chimie Bacterienne, C.N.R.S. B.P. 71, 31 Chemin Joseph Aiguier, 13277 Marseille Cedex 9, France.

SO FEMS Microbiol.Lett.; (1983) 20, 3, 347-50 CODEN: FMLED7

DT Journal

LA English

AB A cellobiohydrolase component was isolated from the anaerobic thermophilic cellulolytic bacterium Clostridium stercorarium. The microorganism was grown at 60 deg in a medium containing Walseth cellulose obtained from MN300 cellulose. After 40 hr the culture was centrifuged and the supernatant was filtered through glass fiber disks before precipitation with ammonium sulfate. The enzyme, assumed to be exoglucanase, was purified by DEAE-Trisacryl column chromatography. Walseth cellulose was partially hydrolyzed by the enzyme and the soluble products found after 72 hr of incubation with this substrate were identified by HPLC analysis. The major product of hydrolysis was cellobiose. When combined with endoglucanase the enzyme allowed an extensive hydrolysis demonstrating a marked synergism in the action of those 2 components. The addition of beta-glucosidase (EC-3.2.1.21) gave a further increase in activity. (18

ref)